

In the Claims

Claims 1-51 (cancelled).

Claim 52 (new): A deposition apparatus configured to deposit material over a substantially circular semiconductor wafer substrate, the substrate being defined to comprise a plurality of annular regions extending radially inwardly of one another, the apparatus comprising:

- a substrate susceptor defining a recess above a trough, the recess configured to receive a portion of the semiconductor wafer substrate and the trough defining a space between the substrate and the susceptor wherein the substrate susceptor is configured to spin while the substrate is received therein and to thereby spin the substrate;

- one or more heating sources for providing thermal energy to the substrate while it is spinning;

- a radiation detector;

- a plurality of rotating radiation conduits associated with a plurality of stationary radiation conduits, the rotating radiation conduits extending from within the trough and proximate the substrate through the susceptor to operable proximity of the stationary radiation conduits, wherein the rotating radiation conduits are configured to channel radiation from the annular regions of the spinning substrate to the stationary radiation conduits, and the stationary radiation conduits are configured to channel the radiation to the detector, the detector being configured to receive the radiation from the stationary radiation conduits and output data signals in response to the radiation, the data signals being associated with the annular regions of the spinning substrate, at least one of the rotating radiation conduits being

associated with each of the annular regions; and

a signal processor in data communication with the detector and configured to process data signals from the detector; the signal processor being utilized to estimate temperatures of each of the annular regions as the substrate is spinning.

Claim 53 (new): The apparatus of claim 52 wherein the radiation is infrared radiation, and wherein the rotating radiation conduits are fibers.

Claim 54 (new): The apparatus of claim 53 wherein the rotating radiation conduits are within a shaft, the stationary radiation conduits are within a receptor, and further comprising a coupling between the shaft and receptor that enables vacuum to be maintained within the shaft while the substrate is spinning.

Claim 55 (new): The apparatus of claim 52 wherein the rotating conduits comprise outer and inner rotating conduits, the outer rotating conduits being configured to align with an outermost annular region of the substrate and the inner rotating conduits being configured to align with an innermost annular region of the substrate, and wherein the stationary conduits are aligned radially inwardly of the outermost annular region of the substrate.

Claim 56 (new): The apparatus of claim 52 wherein the susceptor is configured to define individual ring portions aligned with the annular regions

of the substrate, the plurality of rotating radiation conduits comprising at least one set of conduits extending through at least one individual ring portion with individual rotating radiation conduits of the set positioned in a circular pattern within the one individual ring portion.